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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,467	KARCZEWICZ ET AL.	
	Examiner	Art Unit	
	Christopher Findley	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/01/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. **Claims 19-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

Independent claim 19 recites "A software product for use in a scalable media data coding device…" that fails to meet the statutory requirement set forth in the Interim Guidelines, Annex IV (a) and (b):

(a) Functional Descriptive Material: "Data Structures" Representing Descriptive Material Per Se or Computer Programs Representing Computer Listings Per Se

Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer.

The program has to be embodied in a *computer readable* medium. Claim 19 fails to recite this aspect.

(b) Nonfunctional Descriptive Material

Nonfunctional descriptive material that does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35

U.S.C. § 101. Certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture or composition of matter.

Claim 19 should be rewritten as a computer readable medium stored thereon a computer program containing steps for executing the operations described in claim 19.

Claims 20-23 are dependent upon claim 19.

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-8 and 10-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over van der Schaar et al. (US 6788740 B1) in view of Eshet et al. (US 20060244840 A1).

Re claim 1, van der Schaar discloses a method in scalable media data coding, wherein original media data having a plurality of original coefficients is presented in a plurality of layers including a base layer (van der Schaar: Fig. 2), the base layer associated with a plurality of base-layer coefficients corresponding to original coefficients (van der Schaar: Fig. 2, transform block 214 outputs coefficients), each

original coefficient having an original value (van der Schaar: column 3, lines 65-67, the quantization data used is based on the base layer), and wherein a binarization procedure is undertaken for forming a plurality of enhancement layers (van der Schaar: column 3, lines 51-56), each enhancement layer having a plurality of enhancement layer coefficients corresponding to the base-layer coefficients and at least partially based upon a predicted value of the enhancement layer coefficients corresponding to the original coefficients (van der Schaar: column 3, lines 56-64), said method comprising: obtaining intervals at least partially based on a quantization step-size of an enhancement layer and reconstructed values of the enhancement layer coefficients associated with at least one of a plurality of layers including said enhancement layer, other enhancement layers and the base layer (van der Schaar: column 3, line 56, through column 4, line 10; column 4, lines 37-46); refining the intervals at least partially based on the relationship between the predicted values, the original coefficients and the intervals (van der Schaar: column 9, line 66, through column 10, line 19). Van der Schaar does not explicitly disclose re-computing the reconstructed values and reducing the quantization step-size for a next coefficient and a next enhancement layer. However, Eshet discloses a method for scalable representation, storage, transmission, and reconstruction of media streams, where an original media stream is re-quantized using various quantizing scales with values getting smaller as the number of the enhancement layer increases (Eshet: paragraph [0027]). Since both van der Schaar and Eshet relate to coding data in a fine granularity scalable scheme, one of ordinary skill in the art at the time of the invention would have found it obvious to combine their

teachings in order to provide a method for robust transmission of media streams while efficiently reconstructing a media stream from various representations of the media stream (Eshet: paragraph [0006]). The combined method of van der Schaar and Eshet has all of the features of claim 1.

Re claim 2, the combined method of van der Schaar and Eshet discloses computing one of said intervals for each original coefficient to be encoded based on a reconstructed value corresponding to said each original coefficient and the quantization step-size (Eshet: paragraph [0027]).

Re claim 3, the combined method of van der Schaar and Eshet discloses possibly emitting a value at least partially depending upon the position of said each original coefficient, the position of the predicted value of the enhancement layer coefficient corresponding to said each original coefficient, relative to each other and relative to said interval, for refining said interval at least partially based on the emitted value for providing a refined interval (van der Schaar: column 9, line 66, through column 10, line 19).

Re claim 4, the combined method of van der Schaar and Eshet discloses that re-computing of the reconstructed value is at least partially based on said refined interval (van der Schaar: column 9, line 66, through column 10, line 19).

Re claim 5, the combined method of van der Schaar and Eshet does not explicitly disclose repeating said obtaining, emitting, refining, re-computing and reducing until the quantization step-size reaches a predetermined value. However, the Examiner

takes Official Notice that one of ordinary skill in the art at the time of the invention would have found it obvious that the iterative process of scaling the quantization accuracy would continue until the system designer decided that enough detail had been incorporated into the coded signal.

Re claim 6, the combined method of van der Schaar and Eshet does not explicitly disclose that the predetermined value is zero. However, the Examiner takes Official Notice that one of ordinary skill in the art at the time of the invention would have found it obvious that if the iterative process of scaling the quantization accuracy continues decreasing the step size, the value would eventually approach zero.

Re claim 7, the combined method of van der Schaar and Eshet discloses that the value is a binary digit value (van der Schaar: column 10, lines 28-51).

Re claim 8, the combined method of van der Schaar and Eshet discloses that the value is one of two binary digit values of zero and one (van der Schaar: column 10, lines 12-13, state that the lower bound is always zero).

Re claim 10, the combined method of van der Schaar and Eshet discloses that the interval has a boundary and wherein said refining of the interval is at least partially based upon whether said each original coefficient falls within the boundary of the interval (van der Schaar: column 9, line 66, through column 10, line 19).

Re claim 11, the combined method of van der Schaar and Eshet discloses a coding device for use in scalable media data coding, wherein original media data having a plurality of original coefficients is presented in a plurality of layers including a base

layer (van der Schaar: Fig. 2), the base layer associated with a plurality of base-layer coefficients corresponding to original coefficients (van der Schaar: Fig. 2, transform block 214 outputs coefficients), each original coefficient having an original value (van der Schaar: column 3, lines 65-67, the quantization data used is based on the base layer), and wherein a binarization procedure is undertaken for forming a plurality of enhancement layers (van der Schaar: column 3, lines 51-56), each enhancement layer having a plurality of enhancement layer coefficients corresponding to the base-layer coefficients and at least partially based upon a predicted value of the enhancement layer coefficients corresponding to the original coefficients (van der Schaar: column 3, lines 56-64), said device comprising: a binarization module, responsive to the original media data, for providing a signal indicative to binarized data (van der Schaar: Fig. 2, entropy coder 218 outputs a bitstream); and a coding module, responsive to the signal, for providing encoded media data at least partially based on the binarized data (van der Schaar: Fig. 2, entropy coder 218), wherein the binarization module comprises a mechanism to carry out the steps of: obtaining intervals at least partially based on a quantization step-size of an enhancement layer and reconstructed values of the enhancement layer coefficients associated with at least one of a plurality of layers including said enhancement layer, other enhancement layers and the base layer (van der Schaar: column 3, line 56, through column 4, line 10; column 4, lines 37-46); refining the intervals at least partially based on the relationship between the predicted values, the original coefficients and the intervals (van der Schaar: column 9, line 66, through column 10, line 19); re-computing the reconstructed values (Eshet: paragraph

[0027]); and reducing the quantization step-size for a next coefficient and a next enhancement layer (Eshet: paragraph [0027]).

Claim 12 has been analyzed and rejected with respect to claim 2 above.

Claim 13 has been analyzed and rejected with respect to claim 3 above.

Claim 14 has been analyzed and rejected with respect to claim 4 above.

Claim 15 has been analyzed and rejected with respect to claim 5 above.

Claim 16 has been analyzed and rejected with respect to claim 8 above.

Re claim 17, the combined method of van der Schaar and Eshet discloses a base layer encoder, responsive to the original media data, for providing base layer encoded data to the coding module (van der Schaar: Fig. 2, base layer encoding unit 210).

Re claim 18, the combined method of van der Schaar and Eshet discloses that the mechanism comprises a software program for carrying out the steps (van der Schaar: column 6, lines 30-33).

Claim 19 recites the corresponding computer program for implementing the method of claim 1, and, therefore, has been analyzed and rejected with respect to claim 1 above.

Claim 20 has been analyzed and rejected with respect to claim 2 above.

Claim 21 has been analyzed and rejected with respect to claim 3 above.

Claim 22 has been analyzed and rejected with respect to claim 4 above.

Claim 23 has been analyzed and rejected with respect to claim 5 above.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over van der Schaar et al. (US 6788740 B1) and Eshet et al. (US 20060244840 A1) as applied to claims 1-8 and 10-23 above, and further in view of Wu et al. (US 6700933 B1).

Re claim 9, the combined method of van der Schaar and Eshet discloses a majority of the features of claim 9 as discussed in claims 1, 2, 3, 7, and 8 above, but does not explicitly disclose that said interval has a center, and wherein the emitted value is one or zero is partially depending upon the position of said each original coefficient relative to the center of the interval. However, Wu discloses a method with advance predicted bit-plane coding for progressive fine-granularity scalable (PFGS) video coding, where quantizer steps have equal intervals with a center and the DCT coefficients encoded in high enhancement layers are the differences between a high quality predicted DCT (HQPD) and a dequantized value (which would conventionally be the center value of the quantization step's range) (Wu: column 17, lines 40-63). Since van der Schaar, Eshet, and Wu all relate to coding data in a fine granularity scalable scheme, one of ordinary skill in the art at the time of the invention would have found it obvious to combine their teachings in order to provide an efficient layered video coding scheme that adapts to bandwidth fluctuation and also exhibits good error recovery characteristics (Wu: column 3, lines 27-29).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. Scalable predictive coding method and apparatus

Rose (US 6731811 B1)

b. Scalable video encoding

Kirenko (US 20060008002 A1)

c. Scalable compression of audio and other signals

Rose et al. (US 20030212551 A1)

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Findley whose telephone number is (571) 270-1199. The examiner can normally be reached on Monday-Friday 7:30am-5pm, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Findley/

PRIMARY EXAMINER